

THE EFFECTS OF BILINGUAL PLACEMENT AND MIDDLE  
SCHOOL TRANSITION ON THE SENSE OF SCHOOL BELONGING  
IN HISPANIC STUDENTS

A Dissertation

by

EMILIE A. NEY

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree  
of

DOCTOR OF PHILOSOPHY

August 2010

Major Subject: School Psychology

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Approved by:

Chair of Committee, Jan Hughes  
Committee Members, Jeffrey Liew  
Blanca Quiroz  
Victor Willson  
Head of Department, Victor Willson

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## ABSTRACT

The Effects of Bilingual Placement and Middle School  
Transition on the Sense of School Belonging  
in Hispanic Students. (August 2010)

Emilie A. Ney, B.A., The University of Richmond

Chair of Advisory Committee: Dr. Jan Hughes

Because bilingual programs provide a secure environment likely to promote school belonging, it was hypothesized that Hispanic students in a bilingual program would experience higher belonging than those in regular education and that they would experience a steeper drop in belonging at the transition to middle school. Participants were 277 Hispanic and White elementary and middle school students who were followed longitudinally from grade 4 to 6. Structural Equation Modeling (SEM) was used to compare the mean levels of school belonging across groups and measure the change in school belonging at the transition. Results suggested that Hispanic students both in bilingual and in regular education had higher belonging than White students and that groups did not differ in their change in belonging at the transition to middle school.

## DEDICATION

To my parents and my brother,  
for providing both the nature and  
the nurture for me to achieve

## ACKNOWLEDGMENTS

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1. INTRODUCTION: THE EFFECTS OF BILINGUAL PLACEMENT  
AND MIDDLE SCHOOL TRANSITION ON THE SENSE OF SCHOOL  
BELONGING IN HISPANIC STUDENTS

Education is becoming an increasing necessity in the United States, yet there remain large subgroups of the population that are not effectively being reached by our education system. Among those most at risk for school failure are Hispanic youth. According to the National Center for Education Statistics, in 2000, the status dropout rate for Hispanics was 28 percent, compared to 13 percent for Blacks and 7 percent for Whites. It is true that Hispanics born outside the United states are more likely to leave school before graduation (44 percent dropout rate) than those born in the United States, but even when these students are not included in the count, Hispanics are still more likely to drop out than their counterparts of other races/ethnicities (National Center for Education Statistics, 2007; Weiner, Leighton, & Funkhouser, 2000). In fact, length of residence in the Unites States has been associated with declines in

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This dissertation follows the style of *Journal of School Psychology*.

students' academic success (Padilla & Gonzalez, 2001; Suarez-Orozco & Suarez-Orozco, 2001).

Among Hispanic students, even those who do stay in school are plagued with academic struggles. On the National Assessment of Educational Progress in 2007, only 49.55% of Hispanic students met or exceeded the basic reading level at 4<sup>th</sup> grade, as compared to 78.08% of their White peers. By eighth grade the gap closed only slightly, with 58.09% of Hispanics and 83.67% of Whites exceeding the basic reading level (U. S. Department of Education, 2004; National Center for Education Statistics, 2007; Weiner et al., 2000). Research has shown that Hispanics' levels of achievement remain below expected levels even when instructed and tested in Spanish (National Research Council, 1998).

These alarming academic outcomes are of particular concern when the rate of growth of the Hispanic population in the United States is considered. Hispanics are now the largest minority population, constituting 15.1 percent of the total U.S. population in 2007, as well as the fastest growing in the United States, increasing 3.3 percent between July 1, 2006 and July 1, 2007 (U.S. Census Bureau News, 2008). Similarly, although the school population as a whole has grown only 12% since 1990, the population of

English Language Learners (ELLs) has grown by 105% and it is estimated that by the year 2030 one-fourth of the total school enrollment will be Hispanic, with many of these at risk for academic difficulty (Kindler, 2002; National Center for Education Statistics, 2007; National Institute of Child Health and Human Development, 2000).

### *1.1 Risk and Protective Factors*

There are many combinations of factors that cumulatively place Hispanics at risk for such outcomes. Many of these factors are often associated with low socioeconomic status, as many Hispanic students come from low income families (National Institute of Child Health and Human Development, 2000; National Research Council, 1998). For example, children who have poorly educated parents often do not receive the proper home and preschool experiences that are necessary to develop school readiness skills, putting them at a disadvantage from the start. Throughout school, this risk factor continues to affect these students because their parents are unable to provide proper academic support in the home (Dickinson & McCabe, 2001; Farver, Xu, Eppe, & Lonigan, 2006; National Institute of Child Health and Human Development, 2000; National Research Council, 1998; Weiner et al., 2000). Similarly,

low socioeconomic status is associated with residence in troubled communities and placement in low achieving schools, which further deprives the student of an optimal academic environment (National Institute of Child Health and Human Development, 2000; National Research Council, 1998).

Another clear risk factor for many Hispanics is status as an English Language Learner (ELL). It is understandable that students for whom English is not the first language struggle with learning academic content while trying to master the English language, and once they fall behind it is difficult to catch up (National Institute of Child Health and Human Development, 2000; National Research Council, 1998). For students recently moving to the United States, the acculturative stress of adapting to a new culture is likely to interfere with both academic and social functioning (Martinez, DeGarmo, & Eddy, 2004). It has also been suggested that the effects of discrimination and prejudice, which are commonly reported among Hispanic students, as well as difficulty identifying Hispanic role models who are prominent in society can contribute to disengagement, hopelessness, and less success in school (Fennelly, Mulkeen, & Giusti, 1998; Fisher, Wallace, &

Fenton, 2000; Green, Rhodes, Hirsch, Suarez-Orozco, & Camic, 2008; Portes, 2000).

While these risk factors may be difficult to manipulate, research has identified protective factors that promote academic success among Hispanic learners. By focusing on protective factors that can be manipulated in the school setting, the influences of these risk factors may be buffered. One such factor that is believed to promote school success is a sense of school belonging, or the degree to which a student perceives him or her-self to be accepted and included within his or her school (Goodenow, 1993). This includes a sense of relatedness to teachers and students as well as pride in the school as a whole.

### *1.2 Impact of School Belonging*

*Social development theory.* The social development theory, originally proposed by Catalano and Hawkins (1996) as an explanation for the development of antisocial behavior, is frequently used to describe how school belonging affects outcomes for students. Social development theory postulates that four constructs contribute to the socialization of children. These include (1) perception of opportunities for involvement in activities and

interactions with others, (2) the degree of involvement and interaction, (3) the skills necessary to be involved and interact, and (4) the perception of reinforcement for participation in the activities and interactions. When these constructs consistently function for the child, a bond forms between the child and the socializing unit (Catalano & Hawkins, 1996; Maddox & Prinz, 2003). Therefore, if relationships with teachers and other students are reinforcing of a student's academic engagement, it is believed that academic behaviors, and, in turn, academic performance will increase. It is through reinforcement in these relationships that the sense of school belonging is able to affect student outcomes (Catalano & Hawkins, 1996).

There has been sufficient research to support this theorized relationship between school belonging and academic outcomes, including motivation and engagement, achievement and performance levels, and dropout rates (Booker, 2006; Furrer & Skinner, 2000; Goodenow & Grady, 1993; Israelashvili, 1997; Sanchez, Colon, Esparza, 2005). Additional research exploring social emotional outcomes and behavioral outcomes, however, has not been as conclusive

(Baumeister & Leary, 1995; Furrer & Skinner, 2000; Leary, 2001; Pittman & Richmond, 2007).

*Motivation factors.* Both theory and research have suggested that motivational and engagement variables may be the path by which a sense of school belonging affects academic performance (Catalano & Hawkins, 1996; Hughes, Luo, Kwok, & Loyd, 2008). High levels of school belonging have been linked to increased expectations of success, achievement values, effort, engagement, interest in school work, task goal orientation, and motivation (Booker, 2006; Furrer & Skinner, 2000; Goodenow & Grady, 1993; Israelashvili, 1997; Sanchez et al., 2005). Similarly, the formation of positive relationships with both teachers and students, which are important components of school belonging, have been found to uniquely and positively contribute to students' increases in academic motivation, effort, engagement, goals, and self-concept (Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Felner & Felner, 1989; Furrer & Skinner, 2000; Green et al., 2008; Hughes et al., 2008; Hymel, Comfort, Schonert-Reichl, & McDougall, 1996; Murdock, Anderman, & Hodge, 2000). In a longitudinal study following 641 students from grade 3 to grade 6 a sense of relatedness to teachers, peers, and family predicted



academic engagement, which in turn influenced students' academic performance (Furrer & Skinner, 2000). Similarly, Murdock, Anderman, and Hodge (2000) followed a diverse sample of 238 students across the transition to high school and through a stepwise multiple regression concluded that student perceptions of teacher expectations and peer aspirations predicted academic motivation in ninth grade. Students who feel rejected or alienated, on the other hand, report lower levels of motivational factors as well as other poor academic outcomes (Becker & Luthar, 2002; Finn, 1989, 1993; Kaplan, Peck, & Kaplan, 1997).

*Academic outcomes.* Considering these findings on academic motivation and engagement, it is not surprising that students' achievement levels are also related to school belonging. Measures of school belonging have consistently been positively related to achievement outcomes measured both by grades and performance on standardized tests (Adelabu, 2007; Baumeister & DeWall, 2005; Booker, 2006; Furrer & Skinner, 2000; Maddox & Prinz, 2003; Pittman & Richmond, 2007).

Further support for this conclusion is evident in the association between positive teacher and peer relationships and higher levels of achievement (Hughes et al., 2008;

Hymel et al., 1996; Suarez-Orozco, Suarez-Orozco, & Todorova, 2007). In a three year longitudinal study by Hughes, Luo, Kwok, & Loyd (2008) it was found that students' math and reading achievement in third grade was predicted by the quality of their teacher-student relationship in first grade and that student engagement completely mediated this relationship. Research has shown that students who are socially disconnected or rejected, however, become alienated from school, have lower grades, increased absenteeism and truancy, are at higher risk of grade retention, and are less well-adjusted in school (Coie, Lochman, Terry, & Hyman, 1992; DeRosier, Kupersmidt, & Patterson, 1994; Hymel et al., 1996; Kaplan et al., 1997; Kupersmidt & Coie, 1990; O'Neil, Welsh, Parke, Wang, & Stand, 1997; Nishina, Juvonen, & Widow, 2005).

In addition to academic performance, school dropout is an important academic outcome that seems to be linked to school belonging. One out of four high school dropouts report that they did not belong in their schools, suggesting that school belonging is associated with students' decisions to leave school (U.S. Department of Education, 1993). Research has also suggested that low grades, lack of motivation, social isolation, and peer

rejection increase the risk of dropping out (Hymel et al., 1997; Kaplan et al., 1997) lending further support to the role school belonging plays in school dropout.

*Social emotional outcomes.* While the literature on the social and emotional outcomes of school belonging is not as extensive, there is evidence to suggests that students who feel that they belong in their school are likely to be more well adjusted psychologically (Baumeister & Leary, 1995; Furrer & Skinner, 2000; Leary, 2001; Pittman & Richmond, 2007). Relationships have been found linking a sense of belonging with better self-esteem, confidence, coping skills, and a positive affect in students (Baumeister & Leary, 1995; Furrer & Skinner, 2000; Leary, 2001). Students' reports of previous school belonging significantly predicted current self-worth, internalizing behaviors, and externalizing behaviors, even when demographic and relationship factors were controlled for (Pittman & Richmond, 2007).

Behavioral benefits have been documented for school belonging as well, however mixed results have been found in this area due to the dependence upon whether or not these bonds are formed with prosocial peers (Maddox & Prinz, 2003). When bonds are formed with prosocial peers and

teachers, school belonging delays the initiation and reduces the likelihood of substance use and decreases future behavior problems and aggression (Hughes, Cavell, & Jackson, 1999; Maddox & Prinz, 2003; Pianta, Steinberg, and Rollins, 1995). However, when bonds are formed with antisocial peer groups, delinquent behavior is likely to increase (Pianta et al., 1995). Therefore it is important to provide opportunities for socialization with prosocial peer groups.

### *1.3 School Belonging in Hispanics*

In considering school belonging as a potential protective factor in preventing Hispanic school failure and dropout, it is important to discuss what is already known about these constructs specific to Hispanics. In general, there is very little research examining Hispanic students' experience of school belonging and how it contributes to their academic outcomes.

*Academic effects.* Various researchers have explored the reasons cited by students of different ethnicities for dropping out of school. Generally, school "push factors" such as feelings of alienation from school, concern about attacks or hostile treatment from others at school, or being suspended or expelled were the most highly cited

reasons for dropping out across all ethnicities, suggesting that school belonging does play a role in this decision (Jordan, Lara, & McPartland, 1996). In a longitudinal study of 11,000 high school students Croninger and Lee (2001) explored the roles of social and academic risk (including minority status) and perceived support (one aspect of school belonging) on school dropout. Findings suggested that these risks did contribute to dropout but that students' perception of supportive teacher relationships decreases the risk by nearly half. The impact of this relationship on the dropout rates of socially and academically disadvantaged students is even greater. While this lends further support that school belonging is an important factor in students' decisions to stay in school, it does not inform as to whether there is cultural specificity in reasons for dropping out of school. Other studies have suggested some degree of ethnic difference in reasons cited for dropping out. Hispanics were more likely than Whites to cite family related reasons as the most important factor in deciding to drop out, while Whites were more likely to cite school related reasons (Aloise-Young, & Chavez, 2002; Jordan et al., 1996). However, this could reflect the extra importance placed upon the family in the

Hispanic culture rather than suggesting that school belonging is any less influential for Hispanics than for Whites. Instead, it is likely that individual, family, and structural factors interact to affect Hispanic students' decisions about staying in school (Velez & Saenz, 2001).

*Experience of school belonging.* Similarly, insufficient research has been conducted to conclusively determine how Hispanics differ from other ethnicities in their experience of belonging in school. While there is evidence that school belonging is an important predictor of academic outcomes for Hispanics, it has not been established as to whether Hispanic students feel a lower sense of school belonging than other students (Croninger & Lee, 2001; Greene et al, 2007; Goodenow, 1993). Given this limited amount of research regarding the role school belonging plays specific to the Hispanic population as well as the gravity of the academic situation of Hispanic youth, it is important to further explore this area.

*Unique factors for Hispanics.* For Hispanic students the relation between school belonging and both ethnic identity and family relationships presents an additional factor for consideration when examining the effects of school belonging. Generally, a more developed ethnic

identity is associated with more connectedness to school and better academic outcomes (Altschul, Oyserman, & Bybee, 2006; Oyserman, Brickman, Bybee, & Celious, 2006) However, it is possible that for some students a stronger bond to the school, and therefore the host culture, may signify a distancing from the culture of the family (Phinney & Vedder, 2006). For these students, a sense of connectedness with the school may represent a statement by the student that he or she is choosing the new culture over the native culture, while in other students it may be a sign of successfully attained biculturalism. In the case of the former, school belonging may be associated with higher family conflict, which could contribute to an iatrogenic effect of school belonging (Berry, Phinney, Sam, & Vedder, 2006). Therefore, there is reason to believe that in cases in which school belonging signals lower ethnic identity or less close family relationships, it may have different developmental and educational implications in Hispanics than among the majority.

#### *1.4 Bilingual Education*

Currently, there are numerous efforts to address the factors that place Hispanic students at risk for school failure. For example, many schools offer bilingual

education programs that aim to teach Spanish speaking students English as quickly as possible while providing native language instruction in subject areas in order to keep them from falling behind while learning English (Collier & Thomas, 1999; Ramirez, Yuen, & Ramey, 1991). In general, these programs start out with most of the instruction in Spanish in the early grades, and then gradually transition to mostly English, exiting students into regular education classes after 5<sup>th</sup> grade, though there are several variations of the structure of bilingual programs (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007). The theory underlying bilingual education strategies is that if students fully master skills in their first language it is easier to then transfer their understandings to a new language (Cardenas-Hagan et al., 2007; Collier & Thomas, 1999; Ramirez et al., 1991). On the other hand, if all instruction in the first language stops, the child never becomes fully proficient in that language and has more difficulty learning the second language due to a lack of understanding for how language works. For example if a student has mastered Spanish and is learning English, he or she can relate what he or she is learning in English to previous knowledge of Spanish instead of starting from



scratch (Cloud, 2007). This process is generally referred to as cross-linguistic transfer.

Though the body of research on bilingual education is mixed, it seems to suggest that students who are provided first language support have better long term academic outcomes (Cardenas-Hagan et al., 2007; Lopez & Tashakkori, 2004; Office of English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students, 2008; Padilla & Gonzalez, 2001; Ramirez et al., 1991). It is reasonable to assume that emotional outcomes would improve as well, based on the fact that students will be surrounded by people similar to themselves and who speak the same language, though there has been little research exploring this area (Christian, 1996; Gersten, & Woodward, 1995; Lopez, & Tashakkori, 2004; Padilla, & Gonzalez, 2001).

In addition to the language component of the bilingual program, it is possible that participation in a bilingual program may contribute to a student's improved sense of school belonging (Benner & Graham, 2007; Suarez-Orozco et al. 2007), or feelings of relatedness to adults in the school, students in the school, and pride in being part of the school (Goodenow, 1993). It seems logical that students

who feel similar to those around them and have teachers and classmates who share their language and ethnicity are more likely to have a greater sense of relatedness to teachers and peers (Benner & Graham, 2007). In a cross sectional study evaluating a demographically diverse sample of 840 preschool and kindergarten students and their teachers, Saft & Pianta (2001) found that teachers reported having better relationships and less conflict with students who were of their same ethnicity, supporting the value of the bilingual classroom environment. Additionally, relationships with teachers and students similar to themselves can help students learn about and adapt to the dominant culture, buffer the stresses associated with language, discrimination, acculturation, and family separations, develop ethnic pride and self-worth, and develop meaningful peer relationships (Suarez-Orozco et al., 2007). There has not, however, been research conducted to examine the relationship between bilingual education and school belonging.

### *1.5 Study Purposes and Hypotheses*

Therefore, my focus is on how the sense of school belonging differs for Hispanic students in bilingual programs, Hispanic students not in bilingual programs, and

the population as a whole. In non-select community populations, students' sense of school belonging begins to drop from the elementary grades to middle and high school grades, especially at times of transition, such as into middle school. Therefore, the first hypothesis posits that all groups will experience a drop in school belonging at the time of transition. However, it is expected that when students are exited from the bilingual program their sense of school belonging will drop more sharply, as a result of the cultural change in their surroundings.

The second hypothesis is that students in bilingual and White students will have a higher sense of school belonging than Hispanic students that are not in bilingual, as bilingual and White students are likely to feel more similar to the students and teachers that they work with on a daily basis, and therefore will feel more connected. Thus the second purpose of the present study is to compare the levels of school belonging across grades 4-6 among Hispanic students having different levels of participation in bilingual classrooms and White, non-Hispanic students who did not participate in bilingual classrooms. By understanding these trends we can gain a better understanding of the relationship between bilingual

education and school belonging. Thus one purpose of this study is to compare the effect of transitioning out of bilingual classrooms on students' school belonging trajectories.

## 2. METHOD

### 2.1 *Participants*

Participants are approximately 277 elementary and middle-school students, attending one of three school districts (one urban, two small cities) in southeast and central Texas. Participants were originally recruited in first grade across two sequential cohorts in 2001 and 2002 for a prospective longitudinal study examining the impact of grade retention on academic achievement. A total of 1,374 children who scored below the median score on a state-approved measure of literacy in either May of kindergarten or September of first grade and had not previously been retained in first grade were eligible for participation in the study. A total of 1200 parents returned written consent forms, with 784 giving positive consent (447 for the first cohort and 337 for the second cohort; 57% of eligible participants). Children with and without consent did not differ on age, gender, ethnicity, eligibility for free or reduced lunch, bilingual class placement, or literacy test scores.

In the current study, participants are approximately 277 students selected from the entire body of active students who lived within 200 miles of the original school

districts and who had some data on some study variables. All Hispanic and White students from cohorts one and two meeting these criteria were included in the study provided that they did not enter or exit a bilingual program near the time of transition to middle school and they transitioned to middle school in sixth grade. See Figure 1 for a breakdown of the participants who were excluded and those who were included.

Participants include 67 Hispanic students who were educated in a bilingual program throughout elementary school, 117 Hispanic students who were educated in regular education these same years, and 93 White students representing the dominant culture. The 58 retained Hispanic students are included in these totals. These students will be analyzed separately due to the fact that they make the transition at a different time than students who have not been retained. A total of 21 of the bilingual students and 37 of the regular education Hispanic students will be included in the retained group. All students transitioned to middle school between fifth and sixth grade, and all students in the bilingual program transitioned out of bilingual this same year. For promoted students this

transition occurred at time six and for all retained students it occurred at time seven.

The ethnic composition of the students ( $N = 277$ ) in the present study was 33.5% Caucasian and 66.5% Hispanic. A total of 150 students (54.0%) were males. Children's cognitive ability was measured when they were in first grade using the *UNIT* (Bracken & McCallum, 1998) with the mean IQ of 93.77 ( $SD = 13.63$ ).

The current study draws from data collected across seven waves of an on-going larger longitudinal study. At the first data point (fourth grade) the children's mean age was 9.52 ( $SD = .40$ ) for the students who were promoted and 10.52 ( $SD=.40$ ) for retained students. Approximately 60% of promoted participants and 91.4% of retained participants were eligible for free or reduced lunch. The average reading achievement score on the *Woodcock Johnson Tests of Achievement-Third Edition* was 98.29 for promoted students and 91.3 for retained students while the average math score was 103.58 for promoted students and 92.36 for retained students (WJ-III; Woodcock, McGrew, & Mather, 2001). For the majority of the participants, at least one adult in their homes had a high school education or higher and was employed full-time and parents reported an average level of

conduct problems of .32 for promoted students and .38 for retained students on a scale from zero to two.

Not all students have complete data for all variables used in this study. Attrition analysis was conducted using a t-test in SPSS to determine if participants with and without complete data differ on demographic or study variables at baseline. In the promoted data set, the 140 participants with complete data did not differ from the 79 students with incomplete data on school belonging, full scale IQ, ethnicity, gender, socio-economic status, reading achievement, or math achievement at baseline. In the retained data set the 31 participants with complete data differ from the 27 participants with incomplete data on reading achievement at baseline but did not differ on school belonging, full scale IQ, gender, ethnicity, socio-economic status, or math achievement. Skewness and kurtosis values for study variables were within acceptable range for the analyses employed (West, Finch, & Curran, 1995). There were a few students who consistently scored as outliers, however upon examination it was determined that these scores did accurately reflect the students' low sense of school belonging.



## 2.2 Measures

Data for the current study were measured once per year beginning in the 2001-2002 school year and continued through the 2007-2008 school year. Students were individually administered the *Psychological Sense of School Membership (PSSM; Goodenow, 1993)* scale each year. Assessors were undergraduate and graduate students who were trained in test administration for approximately 20 hours prior to testing. All assessors received additional training until they were able to demonstrate their proficiency. Each test protocol was checked twice for accuracy by a school psychology doctoral student and an undergraduate research assistant.

*School belonging.* The *Psychological Sense of School Membership* scale is a well established 18 item self report scale. The response format is based on a five point Likert scale from (1) false to (5) true. It addresses the degree to which a student feels accepted, included, respected, and encouraged to participate in the school. At time 4 reliability was measured with  $\alpha = .85$  in both cohorts (Goodenow, 1993).

*Hispanic makeup of school.* Information about the Hispanic makeup of schools was obtained from the records

kept by the Texas Education Agency on the ethnic composition of schools.

### 2.3 Analysis

The proposed models can be seen in Figures 2 and 3. Because retained students transition at a different year, separate analyses are conducted for students who have been retained and for those who have been promoted. The use of a 0 along a path denotes pre-transition measurement while a 1 represents post-transition. In each model groups are compared using multi-group analysis, allowing groups to differ. The intercept variable establishes initial differences in level of school belonging between groups, setting the location of the curve along the y-axis. The transition variable detects changes in school belonging at the time of transition. The mean level of school belonging from Time 1 to Time 3 is entered as a covariate in order to control for previous differences in school belonging between groups. This variable was created by averaging together each participant's school belonging scores from times one through three in SPSS. The percentage of Hispanic students in the child's school is entered as a time-varying covariate in order to control for differences in School

Belonging that may result from having a larger proportion of Hispanic students in the school as a whole.

*Hypothesis 1.* Sense of school belonging is expected to drop for all students at the time of the transition to middle school, however it is expected that the biggest drop will be for those students who are also being exited from the bilingual program. Multi-group analysis in SEM is used to examine the changes that occur in the three groups' school belonging at the time of transition to middle school (which is also the time of transition out of bilingual for the bilingual students).

*Hypothesis 2.* Pre transition sense of school belonging is expected to be higher for students participating in the bilingual program and White students, than for Hispanic students in regular education. Multi-group  $X^2$  difference tests were used through Structural Equation Modeling (SEM) to compare the mean levels of school belonging for Hispanic students in a bilingual program, Hispanic students in regular education, and students from the White dominant culture.

### 3. RESULTS

In order to address the problem of missing data, SAS software, version 9.1 was used to perform an imputation that used the data that were present for the study variables as well as auxiliary variables such as socioeconomic status, gender, ethnicity, and academic achievement scores to estimate values for the missing data. Ten imputed data sets were created and then averaged together when analyses were performed using MPlus software (Muthén & Muthén, 2004).

#### *3.1 Hypothesis 1: All Three Promoted Groups Will Experience Decline at Transition, with Bilingual Students Experiencing Steeper Decline*

The initially proposed model was run for the promoted group using MPlus multi-group SEM analysis and did not converge. The program output suggested that the variance of the variable "time of transition" was probably responsible for the failure to converge. Therefore, the average variance for the change in school belonging at the time of transition was obtained from the ten imputed data sets ( $M=.19$ ,  $SD=.03$ ) and the transition variable was constrained to that value, at which point the model successfully ran,  $\chi^2 (27, N=219) = 10.149$ ,  $p=.9986$ . Upon examination of the

results, it was observed that the percent of Hispanics in the student's school was not associated with school belonging above chance levels so it was removed from the model. Because inclusion of mean school belonging for years 1-3 led to large standard errors and was not necessary from a conceptual perspective, it was also removed. The revised, more parsimonious model (see Figure 4) was then run,  $X^2(6, N=219) = 10.717, p=.0975$ .

In the revised model, Hispanic students in regular education experienced a marginally significant drop in school belonging at the time of transition ( $t=-1.875, p=.061$ ) at the  $p<.05$  level (two-tailed), whereas scores for Hispanic students in a bilingual program ( $t=-.555, p=.579$ ), and white students ( $t=-.582, p=.560$ ), showed no significant change at the time of transition.

A  $X^2$  difference test was then run to determine if the effect of the transition differed across groups. All three groups were constrained to be equal in order to test whether any of the groups differ from the others. The  $X^2$  difference test for the constrained and non-constrained model was not significant  $X_{diff}^2 = 1.199(2df), p = .55$  suggesting that the students in the three groups do not

differ in the effect that transition has on their school belonging. Results of this test can be seen in Table 1.

### *3.2 Hypothesis 1: Both Retained Hispanic Groups Will Experience Decline at Transition, with Bilingual Students Experiencing Steeper Decline*

The model (see Figure 5) was then run for the retained group  $\chi^2 (12, N=58)=9.265, p=.68$  producing mean school belonging scores for Hispanic students in regular education that indicated a significant drop in school belonging at the time of transition ( $t=-2.659, p=.008$ ) at the  $p<.05$  level (two-tailed), while scores for Hispanic students in a bilingual program ( $t=-1.226, p=.220$ ) showed no significant change at the time of transition.

A  $\chi^2$  difference test was then run to determine if the effect of the transition differed across groups, with all three groups set as equal to determine if any of the groups differ from the others. The  $\chi^2$  difference test for the constrained and non-constrained model was not significant  $X_{diff}^2 = .19(1df), p = .66$  suggesting that the students in the two groups do not differ in the effect that transition has on their school belonging. The results of these tests can be seen in Table 2.

### *3.3 Hypothesis 2: Bilingual and White Promoted Students Will Score Higher Than Regular Education Hispanic Students*

A  $X^2$  difference test was then run to test whether the three groups experienced the same or different levels of school belonging pre-transition. The intercept was constrained to be the same across groups and the results were significant,  $X_{diff}^2 = 7.22$  (2df),  $p = .027$ , suggesting that all three groups do not experience the same level of school belonging pre-transition. Therefore, the intercept must be free to vary across groups in order to appropriately represent each group. A graph depicting the average levels of school belonging for each group at each time can be seen in Figure 6. The nature of the group differences will be addressed in a later section.

### *3.4 Hypothesis 2: Bilingual Retained Students Will Score Higher Than Regular Education Hispanic Students*

A  $X^2$  difference test was then run to test whether the two Hispanic groups experienced the same or different levels of school belonging pre-transition. The intercept was constrained to be the same across groups and the results were not significant,  $X_{diff}^2 = .348$  (1df),  $p = .55$ , suggesting that the groups experience the same level of school belonging pre-transition. A graph depicting the

average levels of school belonging for each group at each time can be seen in Figure 7.

### 3.5 *Supplemental Analyses*

Because the original model had to be modified in order to produce results, supplemental analyses were run in order to ensure higher confidence in the results. Because MPlus is based on a different set of algorithms than is SPSS, a 3 (group) X 3 (time) Multiple Analysis of Variance (MANOVA) was run in SPSS, version 13 on one of the imputed data sets in order to determine if equivalent results would be obtained.

*Hypothesis 1: All three promoted groups will experience decline at transition, with bilingual students experiencing steeper decline.* The results of the MANOVA support the findings in the previous analysis, with no significant findings for time  $F(2, 215)=2.128, p=.120$  or the time by group interaction,  $F(4, 432)=.525, p=.718$  (results related to group will be addressed in a later section). This suggests that there is no change in school belonging at the time of transition and the groups do not experience differences in their change across time. This provides support suggesting that the finding of no group



effect for time of transition is robust across different methods.

*Hypothesis 1: Both retained Hispanic groups will experience decline at transition, with bilingual students experiencing steeper decline.* The results of the MANOVA are in agreement with the MPlus model analysis in finding a significant time effect  $F(3, 56)=6.066, p=.001$ . However, in contrast to the model analysis, the MANOVA found no time by group interaction,  $F(3, 168)=.382, p=.766$ , suggesting that the groups do not experience differences in their change across time.

*Hypothesis 2: Bilingual and White promoted students will score higher than regular education Hispanic students.* The supplementary MANOVA results support the findings in the  $\chi^2$  difference test, with a significant group effect  $F(2, 216)=3.522, p=.031$ , but no significant findings for the time by group interaction,  $F(4, 432)=.525, p=.718$ . This suggests that there is a difference in the groups' levels of school belonging but that groups do not experience differences in their change across time. A One-Way ANOVA with planned contrasts was run in order to identify where the group differences lie, comparing Hispanic students to White students and comparing the two Hispanic groups to

each other. Results showed a significant difference  $F(2, 217)=6.899$ ,  $p=.009$  between Hispanic (bilingual and regular education groups) and White school belonging scores with Hispanics ( $M = 3.85$ ,  $SD = .43$ ) scoring higher than Whites ( $M = 3.68$ ,  $SD = .55$ ). No difference was found between the two Hispanic groups  $F(1, 124)=.217$ ,  $p=.642$ . These findings held across all 10 imputed data sets.

*Hypothesis 2: Bilingual retained students will score higher than regular education Hispanic students.* The MANOVA found no significant findings for group  $F(1, 168)=.006$ ,  $p=.937$ , which is in agreement with the  $X^2$  difference test. Results seem to support that there are no group differences in level of school belonging.

## 4. DISCUSSION

### 4.1 *Summary*

SEM analysis with promoted students found a marginally significant drop in school belonging at the time of transition for Hispanic students in regular education, but no drop was found for bilingual Hispanics or White students. Similarly, SEM analyses with retained students found a significant drop in school belonging at the time of transition for Hispanics in regular education, but no drop was found for bilingual students. However, for both promoted and retained groups, the groups did not differ significantly from each other in the effect of transition. The MANOVA results were consistent in finding no time by group interactions.

SEM analyses addressing group differences in mean level of school belonging in promoted students found that the groups differed in pre-transition school belonging. MANOVA results also found a significant group effect. Follow up analyses found that the two Hispanic groups had school belonging scores higher than Whites. For retained students, which included only the two Hispanic groups,

neither SEM nor MANOVA found a group effect for pre-transition levels of school belonging.

Results did not support either of the predicted hypotheses. There was little evidence of any of the groups having significant drops in school belonging at the time of transition, and SEM analyses in fact suggested that the drop was greatest for Hispanic students in regular education. The only difference in school belonging between groups suggested that White students scored lower than the two Hispanic groups.

#### *4.2 Transition Hypothesis*

The SEM model analyses for both promoted and retained students provided evidence that Hispanic students in regular education experienced a drop in school belonging at the time of transition. Neither the bilingual nor the White group showed any drop. However, for both retained and promoted students,  $X^2$  difference tests suggested that there was no statistically reliable difference between the groups in their change in school belonging at the time of transition. Supplementary analyses in SPSS found there to be no time effect for the promoted students. For the retained students the SPSS MANOVA found a significant change across time in school belonging. However, there was

no time by group interaction. This possible drop for retained students may be associated with having been removed from their same age peer group at the time of retention, which prevented them from developing as strong of a relationship with classmates. Although the findings are mixed for the retained students, neither the results for promoted nor retained students support the proposed hypothesis that school belonging would drop for all students at the time of transition with the scores of students in bilingual dropping more sharply. Therefore, this hypothesis is not supported.

A possible explanation for why students transitioning out of bilingual did not experience a drop in sense of school belonging may relate to stability of friend groups. Given research suggesting that maintaining a stable peer group is associated with positive outcomes in middle school (Berndt, Hawkins, & Jiao, 1999), it is possible that students in the bilingual program benefit from having a close cohort of students from elementary school, which students in regular education do not have. As a result of having been with the same students over several years students in bilingual may develop closer friendships that are more likely to carry over to middle school. This close

group of friends may buffer the effect that the transition has on the students in bilingual.

#### 4.3 Mean Difference Hypothesis

The results of  $X^2$  difference tests suggest that groups do differ in mean levels of school belonging for the promoted group, with a One-Way ANOVA revealing that both the bilingual and regular education Hispanic groups scored higher than the White group. There were no differences detected between the bilingual and regular education Hispanic groups. The results for the retained students comparing the two Hispanic groups were in line with this, finding no differences between these two groups (there was no White group included in the retained sample).

Because no group differences existed between Hispanic students in bilingual and those in regular education in either the promoted or the retained data set, the hypothesis that students in bilingual would experience a higher sense of school belonging than those in regular education was also not supported. There was some evidence, however, that both Hispanic groups scored higher than did the White group.

This may be influenced by the overall high percentage of Hispanic students in the schools included in this study.

It is also possible that students in bilingual feel bonded to their bilingual class but feel separate from the school as a whole, therefore leveling their sense of school belonging with that of regular education students.

#### *4.4 Implications and Future Directions*

Despite having not supported the hypotheses predicted for this study, there are several important ways in which these findings contribute to the greater body of research in this area. One purpose of the study was to determine if a contributing factor to the underachievement of Hispanics might be low school belonging, making interventions aimed at improving school belonging a means to closing the achievement gap. Having not supported this hypothesis, caution should be used before focusing extensive resources on improving school belonging. However, the finding that Hispanic students experience the same or higher school belonging than White students opens many doors for the future directions of research.

First, replications should be conducted in order to assure that these findings hold true in other samples of students and in other age groups. The nature of students' school belonging should also be explored, examining any differences in the prosocial and antisocial aspects of

their belonging. For example, a student whose high score on belonging reflects more academic interests and teacher relationships is likely to be different from a student whose feeling of belonging is related to gang participation. A sense of being accepted by teachers and classmates may not promote academic motivation unless one perceives support from teachers and peers for academic achievement. If Hispanic students do not perceive that teachers expect them to achieve, or do not perceive that their peers value academic achievement, feeling a sense of connectedness to teachers and peers may not promote academic motivation. Future research should investigate whether these groups differ on perceived importance of academic achievement to one's peer group.

It is also important to examine what kinds of protective factors might contribute to the high sense of school belonging observed in Hispanic students and if there are ways that these protective factors can be used to improve other variables that might affect academic outcomes. For example, if the value of being a collectivist as opposed to individualistic culture were found to contribute to feelings of belonging, it is possible that such a value could be integrated into an intervention



promoting academic engagement by using more group project settings.

Similarly, other school variables should be identified that affect the same academic outcomes as belonging, such as value for school or school motivation. It is possible that having a high sense of school belonging may be able to be used to also improve these other variables, which may in turn improve academic outcomes. Therefore, interventions in such areas may be strengthened by the relatively strong sense of school belonging experienced by Hispanic students (or by some of the protective factors that contribute to this high school belonging).

Benner and Graham (2007) found evidence that school belonging increases briefly after a transition but later declines. Therefore, it is possible that the full picture of the effects of the transition were not observed in this study, as all post transition data was collected in the first year after transition. It is possible that more differences would emerge if further data points had been collected. Therefore, future research should examine trends across several years following the transition.

Another factor that may affect Hispanic students' experience of school belonging upon transitioning to middle

school is the change in ethnic composition that they experience in their new school. If moving to a larger school in which there may be more Hispanics, students may be protected from the expected drop in school belonging that tends to occur at the transition. Therefore future research should address the role that change in ethnic composition plays in students' sense of school belonging.

Analyses comparing the characteristics of those students who experienced a drop at transition to those who did not would be useful in identifying variables that contribute to how a student will experience the transition. By creating latent classes at transition for students who improved, stayed the same, or dropped in school belonging, characteristics can be identified that are common to each class and conclusions can be drawn to guide future research on how to improve the sense of school belonging.

With the current growth in the Hispanic population and the use of bilingual programs there has been much discussion over the best way to educate English Language Learners both from an academic and a social-emotional standpoint. Therefore, a secondary aim of this study was to determine if participation in a bilingual program may serve as a protective factor for Hispanic students by improving

their sense of school belonging. Based on the current findings in which Hispanic students in bilingual programs and those in regular education do not differ on school belonging, it can not be concluded that school belonging is a means by which bilingual programs affect these outcomes.

#### *4.6 Limitations*

The sample used in this study was limited in several ways. Because a low achieving sample was used and all participants come from two school districts in Texas, this sample may not be representative of the population as a whole. Hispanic students in this area are most likely to be of Mexican descent, which is not true in other parts of the country. Additionally, while schools within the districts have varying ethnic breakdowns, the school districts as a whole have large Hispanic representation. Students attending schools in areas where there are fewer Hispanics may experience school belonging differently than these students.

This study is also limited by nonrandom group assignment. It would be unethical to manipulate which students were assigned to the bilingual or regular education groups, so the students in these groups differ in more ways than just group assignment, confounding the

results. Students in regular education are more likely to already speak English than those in the bilingual group, which is likely to affect how well students feel that they belong in a school. Similarly, students in regular education are more likely to be of second, third, or more generation here in the United States, which has been found to be associated with more negative outcomes (Burnam, Hough, Karno, Escobar, & Telles, 1987; Padilla & Gonzalez, 2001; Suarez-Orozco & Suarez-Orozco, 2001; Turner, Lloyd, & Taylor, 2006; Vega, Aguilar-Gaxiola, Andrade, Bihl, Borges, et al, 2002). Therefore, there are a variety of factors that may contribute to how these students experience school belonging.

Some examination of outcome variables related to school belonging would have added to this study. Especially considering how the present results differ from previous research on the change in school belonging across time, it would have been interesting to examine how school belonging related to the outcomes of interest, specifically achievement and school dropout, for the participants in this sample. Additionally, a concern that has not been fully addressed in the analyses is the possibility that the results may be called into question as a result of low

power. Therefore power analyses are needed in order to increase confidence that the nonsignificant findings are not due to inadequate power to detect small to moderate effects.

## 5. CONCLUSION

While the hypotheses in this study were not supported, results contribute important information to the study of trends related to school belonging. It was found that Hispanic students both in bilingual education and in regular education are likely to experience a higher sense of school belonging than do their White classmates. Additionally, group differences did not occur in the change in school belonging at the time of transition. Therefore, in contexts similar to that of this study, no support was found for the view that school belonging accounts for Hispanic students' greater tendency to drop out of school. Rather, other aspects of social cognition, such as sense of one's academic efficacy, sense of the value of achievement to one's peer group, or perception of teacher or parent educational aspirations may be explanations worth exploring.

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## APPENDIX A

784 Eligible with consent

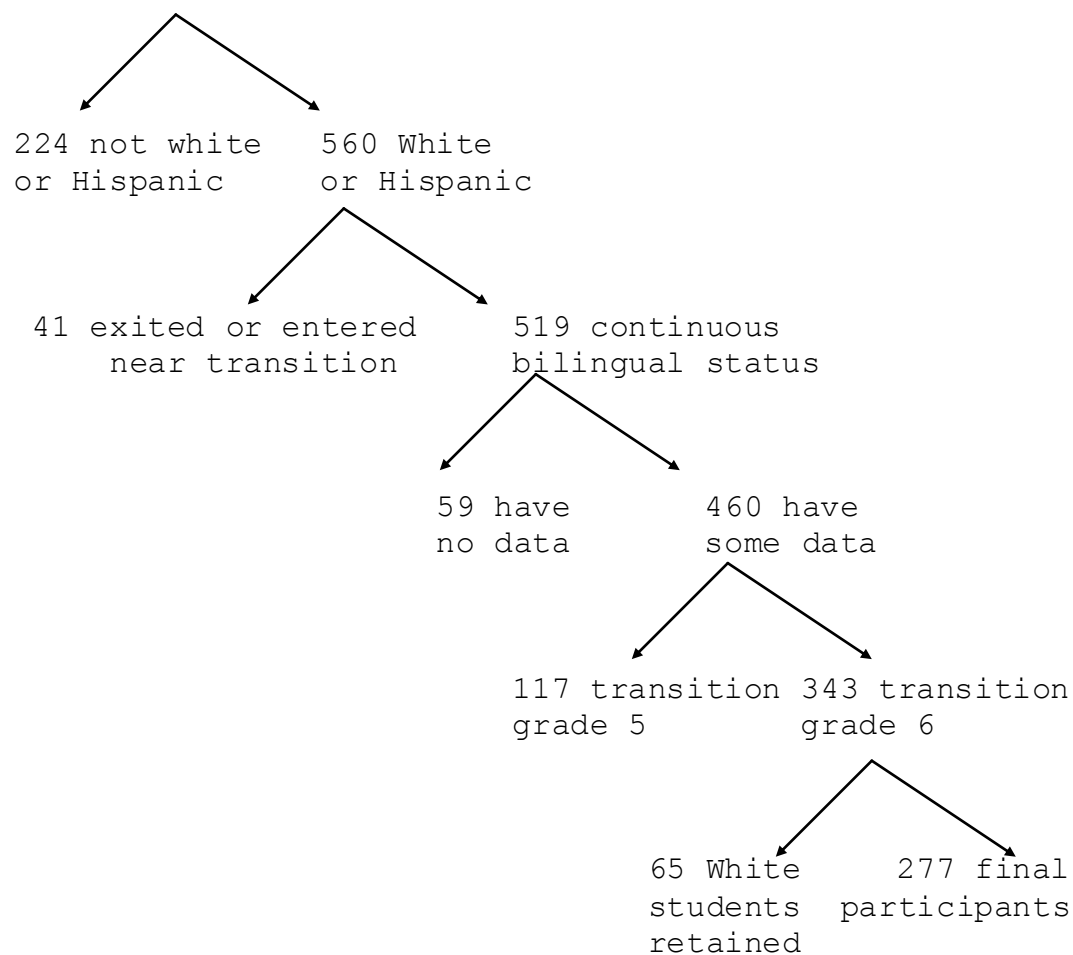


Fig. 1. Flow chart of participants excluded from the study.

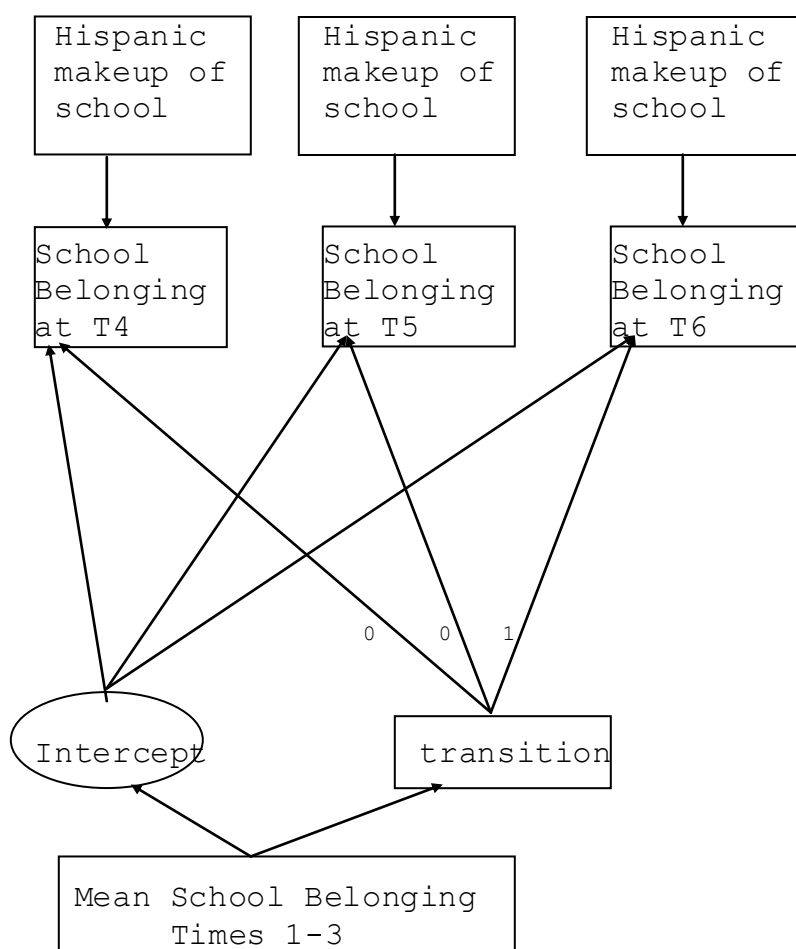


Fig. 2. Model for transition at time 6 for school belonging.

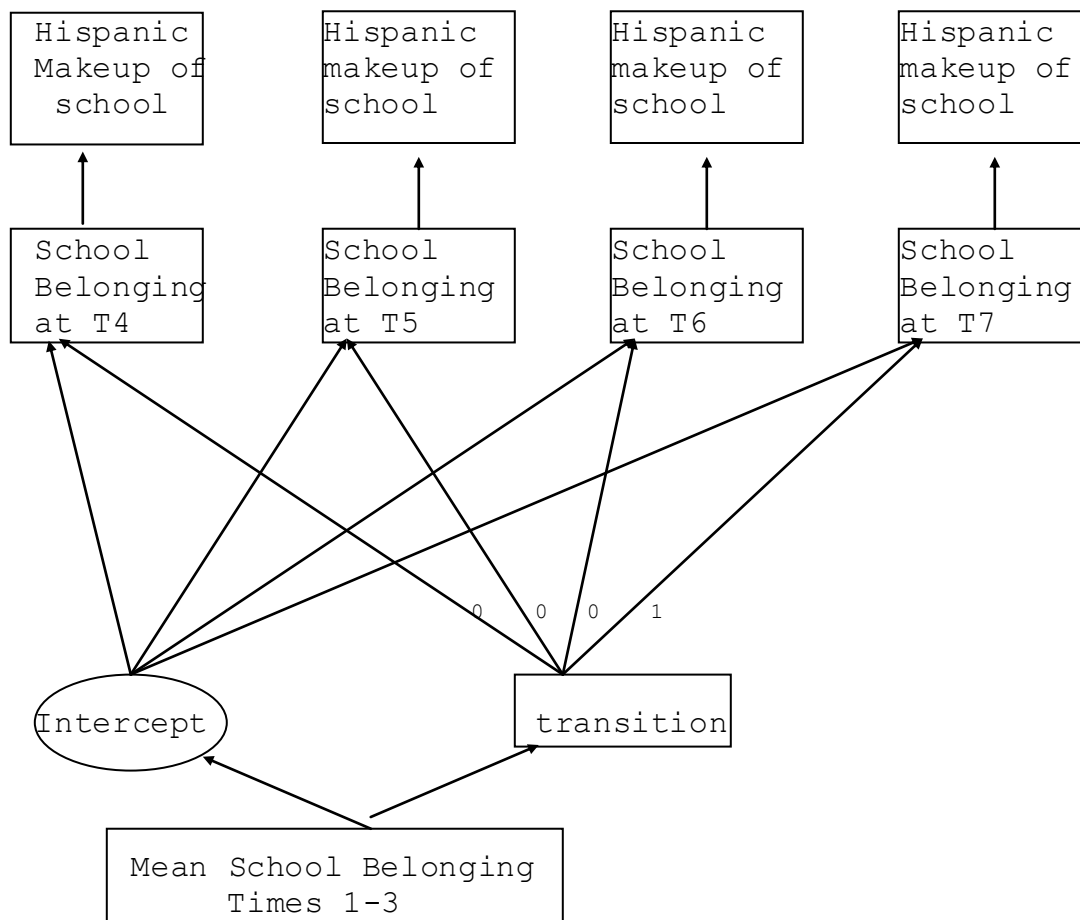
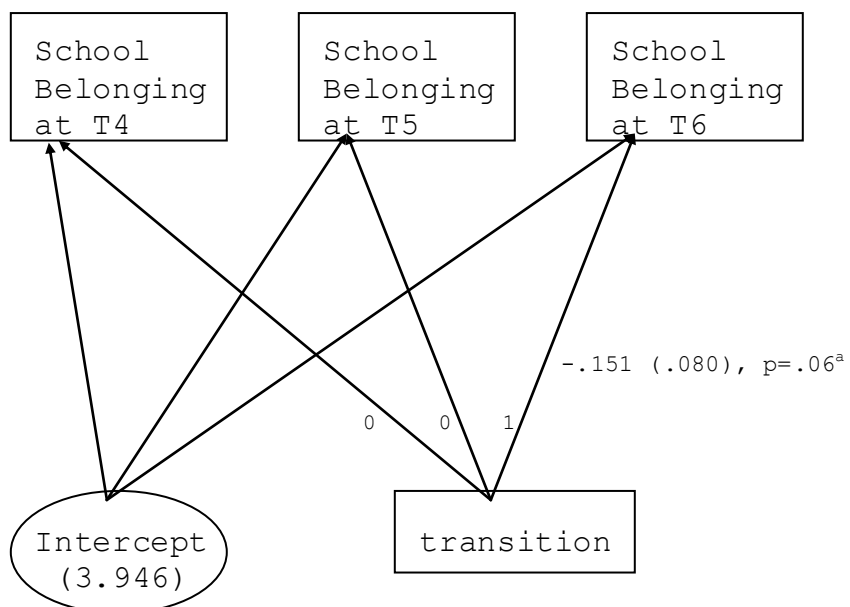


Fig. 3. Model for transition at time 7 for school belonging.

*Regular education students.*



*Bilingual students.*

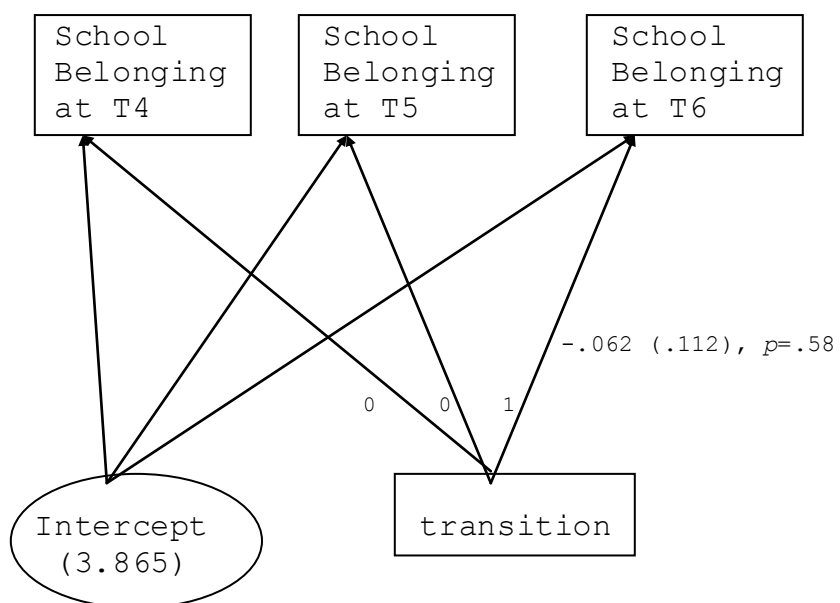


Fig. 4. Revised model for transition at time 6 for school belonging.  
<sup>a</sup>. This is a one-tailed test, making the .06 p value marginally significant.



*White students.*

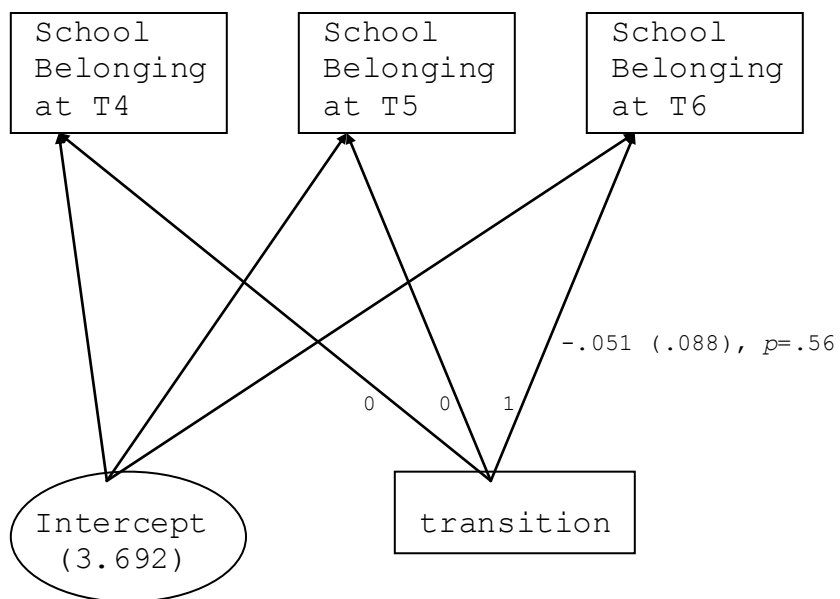


Fig. 4. Continued.

Table 1.

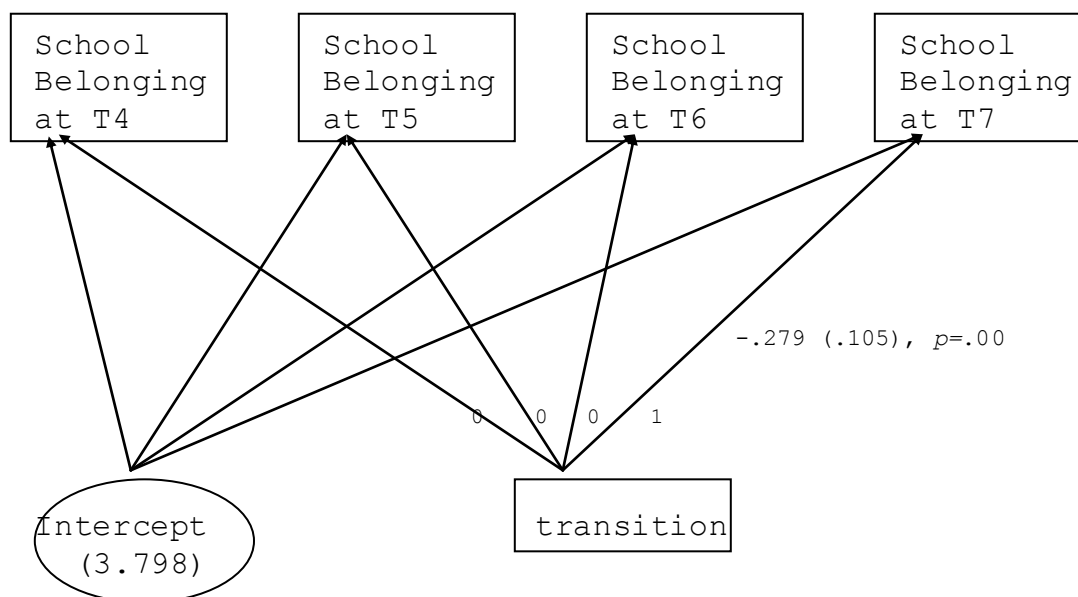
Group differences at time of transition for promoted Students.

<u>Group</u>	<u>Mean change at transition</u>	<u>Intercept</u>
Regular Education	-.151 <sup>a</sup>	3.946*
Bilingual	-.062	3.865*
White	-.051	3.692*

<sup>a</sup>. This is a one-tailed test, making the .06 p value marginally significant.

\* $p < .05$

*Regular education students.*



*Bilingual students*

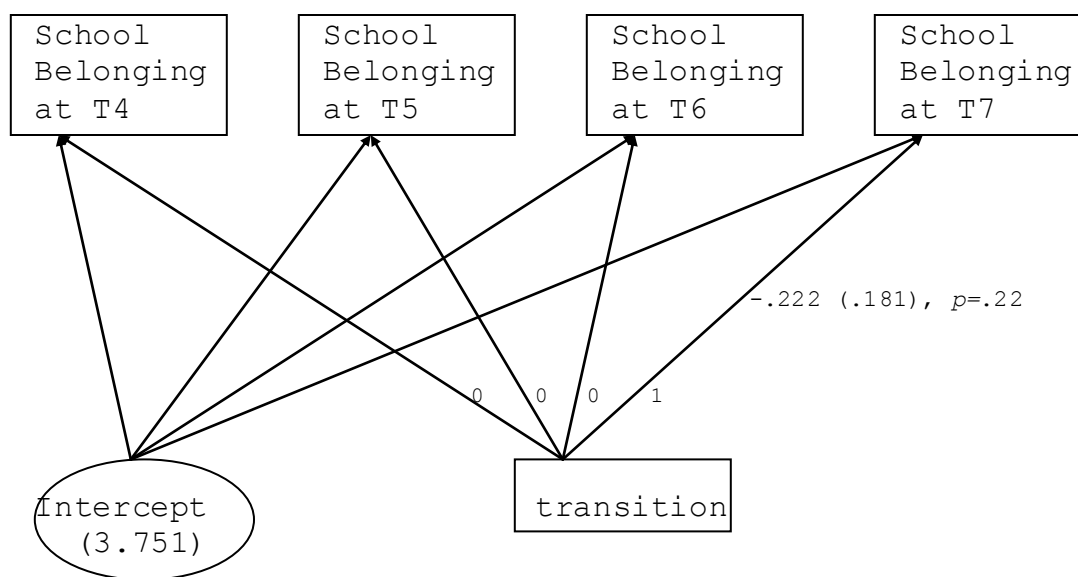


Fig. 5. Revised model for transition at time 7 for school belonging.

Table 2.

Group differences at time of transition for retained students.

<u>Group</u>	<u>Mean change at transition</u>	<u>Intercept</u>
Regular Education	-.279*	3.798*
Bilingual	-.222	3.751*

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\* $p < .05$

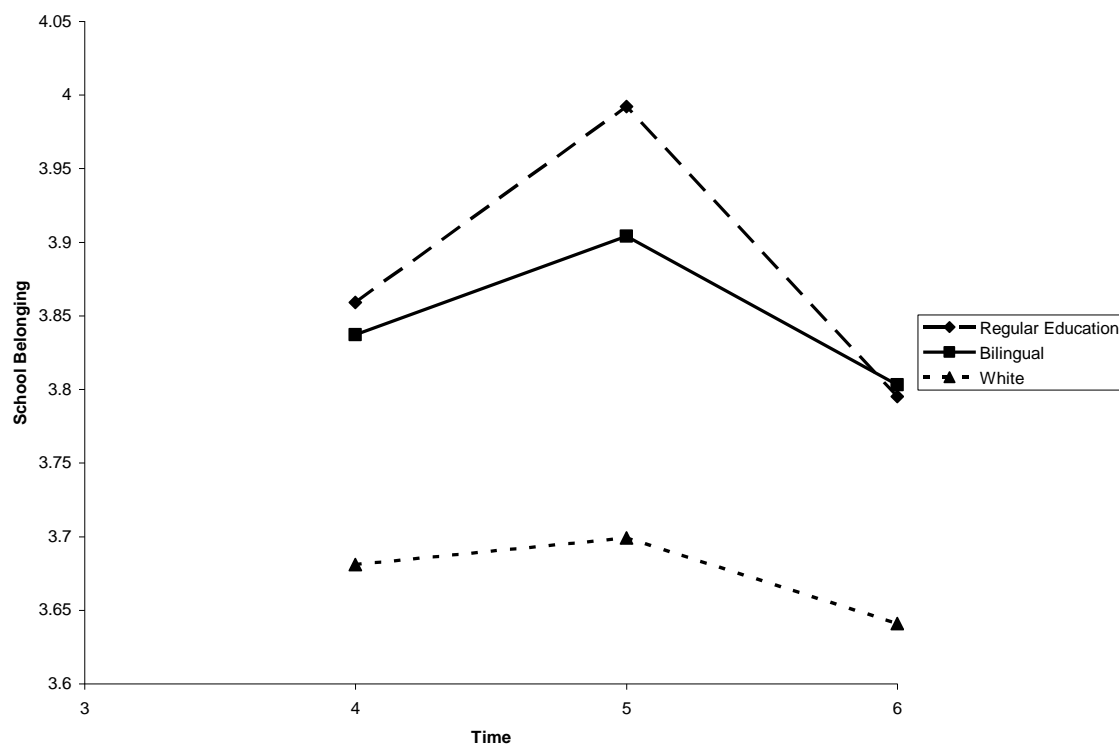


Fig. 6. Mean levels of school belonging in each group of promoted students at each time point.

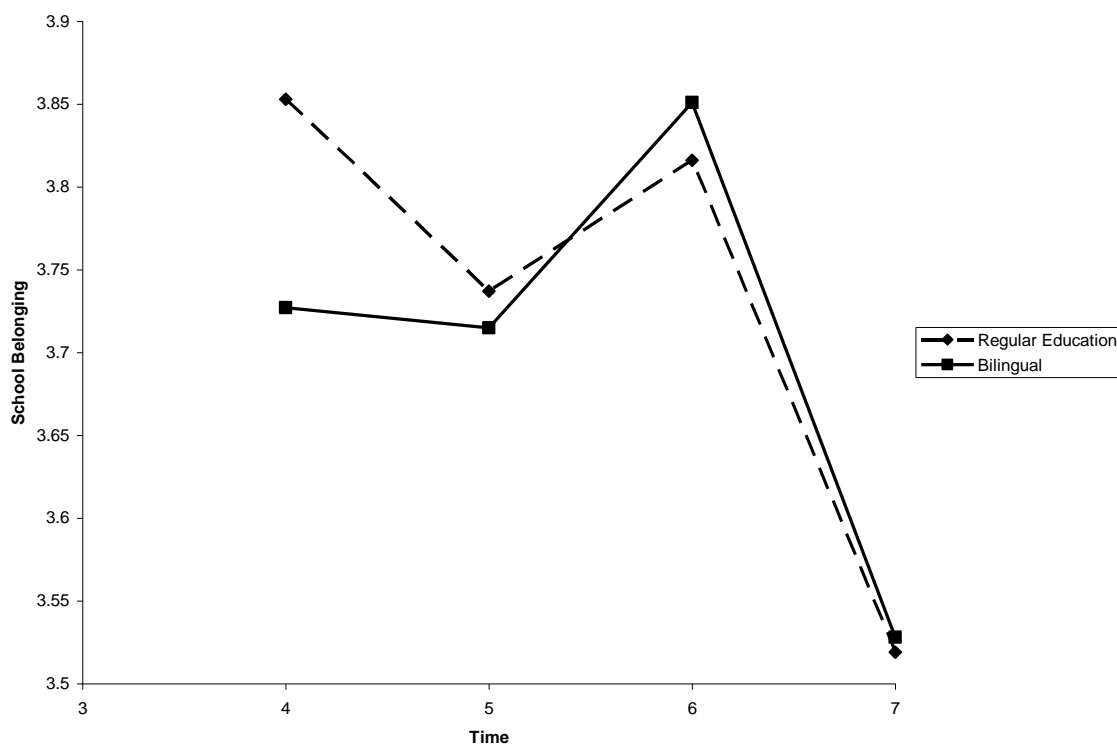


Fig. 7. Mean levels of school belonging in each group of retained students at each time point.

## VITA

Name: Emilie A. Ney

Address: Texas A&M University  
4225 TAMU  
College Station, TX 77843-4225  
eney@tamu.edu

Education: Doctor of Philosophy (2010)  
School Psychology, Texas A&M University

Bachelor of Arts (2005)  
University of Richmond  
Major: Psychology & Minor: Spanish